

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

PRINCETON DIGITAL IMAGE CORP.,)

Plaintiff,)

v.)

Civil Action No. 12-1461-LPS-CJB

HARMONIX MUSIC SYSTEMS, INC.,)
et al. :

Defendants.)

PRINCETON DIGITAL IMAGE CORP.,)

Plaintiff,)

v.)

Civil Action No. 13-335-LPS-CJB

UBISOFT ENTERTAINMENT SA and)
UBISOFT, INC.,)

Defendants.)

MEMORANDUM ORDER

The Court has recently addressed a number of discovery disputes between the parties in these related patent infringement actions involving United States Patent No. 5,513,129 (the “129 patent”). This Memorandum Order addresses the remaining discovery disputes, (Civil Action No. 12-1461, D.I. 227, 280; Civil Action No. 13-335, D.I. 159), which relate to Defendants Harmonix Music Systems Inc. (“Harmonix”), Electronic Arts Inc. (“EA”), Konami Digital Entertainment Inc. (“Konami”) and Ubisoft Inc.’s (“Ubisoft and collectively with the other Defendants, “Defendants”) assertions that Plaintiff Princeton Digital Image Corp.’s (“PDIC”) supplemental infringement contentions are deficient in a number of ways.

1. Defendants first argue that PDIC’s infringement theory as to two limitations (i.e., (1) “means for receiving the first signal and influencing action within a virtual environment in response to said first signal” found in asserted claim 14 (hereinafter, “means for receiving”); and (2) “means for producing the virtual environment in response to said prerecorded control track” found in asserted claims 19 and 20 (hereinafter, “means for producing”)) is based on the doctrine of equivalents, but that PDIC’s infringement contentions are deficient in “provid[ing] no

disclosure of how the accused products are allegedly equivalent to the structure required by the claims.” (D.I. 228 at 1)¹ For its part, PDIC responds that it is not asserting a doctrine of equivalents theory with respect to these limitations, (D.I. 257 (hereinafter, “Tr.”) at 21), and that its supplemental infringement contentions sufficiently identify each game feature that corresponds to each claim limitation, (D.I. 233 at 1-2; Tr. at 23-24). According to PDIC, these claim elements are literally infringed because the accused game software is the same or a structural equivalent to the GL software library (“GL software”) and Fakespace VLIB VR software package (“VLIB software”) required by the claims. (D.I. 233 at 2 & n.2)²

2. During claim construction, the Court construed the structure performing the function of the “means for receiving” limitation to be “a processor programmed with GL software library and the Fakespace, Inc. VLIB Virtual Reality software package for receiving the first signal and influencing action within a virtual environment in response to said first signal by processing the signal to create, destroy, move, and/or modify the display of the virtual

¹ The Court refers to the “D.I.” number in Civil Action No. 12-1461-LPS-CJB, unless otherwise noted.

² The United States Court of Appeals for the Federal Circuit has explained that the tests for structural equivalence under 35 U.S.C. § 112, ¶ 6 and the doctrine of equivalents are “closely related” and involve “similar analyses of insubstantiality of differences.” *Odetics, Inc. v. Storage Tech. Corp.*, 185 F.3d 1259, 1267 (Fed. Cir. 1999) (internal quotation marks and citations omitted). In the doctrine of equivalents context, if the “function, way, or result” of the assertedly substitute structure is substantially different from that described by the claim limitation, equivalence is not established. *Id.* Statutory equivalence under § 112, ¶ 6 is a similar, but narrower concept. There, functional identity is required, such that the assertedly substitutable structure must perform a “function” that is *identical* to the claimed function. *Id.* The assertedly substitutable structure must also perform that function in substantially the same “way” with substantially the same “result” as does the corresponding structure. *Id.* With that said, PDIC appears correct in stating that its argument about structural equivalence is a part of its assertion that it literally infringes the claims. *See, e.g., Tomita Techs. USA, LLC v. Nintendo Co., Ltd.*, 681 F. App’x 967, 970 (Fed. Cir. 2017) (“Literal infringement of a means-plus-function limitation requires that the relevant structure in the accused device [(1)] perform the identical function recited in the claim *and* [(2)] be identical or equivalent to the corresponding structure in the specification.”) (internal quotation marks and citation omitted).

environment or virtual objects in the virtual environment” (D.I. 193 at 25) As for the “means for producing” limitation, the Court construed the structure performing that function to be “a processor programmed with GL software library and the Fakespace, Inc. VLIB Virtual Reality software package for producing the virtual environment in response to said prerecorded control track by processing music information and/or control information derived from the prerecorded control track to create, destroy, move and/or modify the display of the virtual environment or virtual objects in the virtual environment” (*Id.* at 26) PDIC’s supplemental infringement contentions explain that the structures of the accused products that perform the “means for receiving” and “means for producing” functions are the processors in the gaming console systems and the software loaded onto those systems (executed by the processors) that perform the same functions as, and algorithmically are structurally the same as or a structural equivalent of, the GL software and the VLIB software described in the patent. (D.I. 228, ex. D at 5, 38)³ PDIC’s contentions then further assert that:

More specifically, the gaming console system processors are programmed with software performing the same functions as the Fakespace software, including the functions of receiving user input from a virtual reality peripheral device. The gaming console processors execute the *Just Dance* electronic video game software to [] process control information, i.e., information defining markers in the music, song tempo, lyrics, animations, and choreography, extracted from stored electronic song track files, and information representing user input from virtual reality peripheral hardware devices used to play the game software, such as motion-capture game controllers and microphones, to create, destroy, move, and/or modify graphics in the computer-simulated environment produced by the *Just Dance* electronic video game software, and [] play back music and sounds.

³ For simplicity, unless otherwise indicated, the Court will refer to PDIC’s infringement contentions that were served on Ubisoft, as PDIC served “separate, but very similar contentions” on all defendants. (*See* D.I. 228 at 1 n.1; *id.*, exs. A-D)

(*Id.*) With respect to the GL software and the VLIB software, PDIC's letter explains that, as demonstrated in its contentions, the GL software implements algorithms for producing two- and three-dimensional graphics, while the VLIB software implements algorithms for providing user interactivity with a virtual environment, as well as for providing head-tracking and stereoscopic viewing on a head-mounted display. (D.I. 233 at 2 n.3 (citing D.I. 228, ex. D at 30-32)) During a February 21, 2018 telephonic hearing regarding this discovery dispute, PDIC's counsel reiterated that the VLIB software provides for user interactivity by allowing a user to press a button on a peripheral device and recording that user input, and thereafter updating the virtual environment based on such user input. (Tr. at 23-24) Meanwhile, a graphics library such as the GL software creates, destroys, moves, and/or modifies graphics in a virtual environment. (*Id.*)

3. In the Court's view, PDIC's supplemental infringement contentions largely provide sufficient notice of PDIC's infringement theory with respect to these limitations at this stage of the case.⁴ Although Defendants assert that PDIC failed to identify "the structure in the GL software library and Fakespace VLIB VR software package required by the claims, [or] what or how in the accused products is 'equivalent' to that structure[.]" (D.I. 228 at 1), PDIC described the algorithmic structure of the GL and VLIB software as set out above, and described how the software of the accused products is programmed to perform algorithms that are the same as or equivalent to such structures. (*See* D.I. 233 at 2-3); *see also Wi-Lan Inc. v. Vizio, Inc.*, C.A. No. 15-cv-788, 2018 WL 669730, at *1 (D. Del. Jan. 26, 2018) (noting that "[i]nfringement contentions must serve the purpose of providing notice to Defendants of Plaintiff's infringement theories Yet Plaintiff need not in its contentions actually prove its infringement case").

⁴ Plaintiff had not yet reviewed source code prior to preparing the supplemental infringement contentions at issue here, (*see, e.g.*, D.I. 294 at 94; D.I. 307 at 1), and expects to further amend its contentions to add additional citations following its source code review, (D.I. 294 at 94).

4. That said, during the telephonic hearing, Harmonix's counsel expressed concern about Plaintiff's failure to make clear in the contentions whether the GL software is part of Harmonix's software game, or whether it is instead found on the Nintendo or Sony game consoles used to execute the software (which Harmonix does not provide). (Tr. at 15; *see also* D.I. 287 at 1 (Harmonix raising this issue with respect to Plaintiff's amended supplemental infringement contentions, by asserting that PDIC's claim chart "cites marketing language about the capabilities of the Open GL software but fails to identify any OpenGL component of the accused Harmonix software")) The Court agrees that the contentions could be clearer on this front. In the narrative portion of the contentions, as described above, PDIC explains that the gaming console systems execute the *Rock Band* electronic video game software to, *inter alia*, "create, destroy, move, and/or modify graphics in the computer-simulated environment produced by the *Rock Band* electronic video game software[.]" (D.I. 228, ex. A at 5; *see also* Tr. at 25 (PDIC's counsel explaining that "this dance software, when it is executed on a gaming console or mobile device, takes user input from a peripheral device in substantially the same manner that the [VLIB] library software takes user input from a peripheral device and uses graphics library software to produce a virtual environment by creating, moving, modifying, or destroying graphics")) Thus, this aspect of the contentions appears to indicate that the GL software library is located on the accused game software. However, the claim chart portion of the contentions appears to suggest that the graphics libraries are associated with the Nintendo and Sony gaming consoles. (*See, e.g.*, D.I. 228, ex. A at 35-36 (claim charts describing the "Open GL" software and then appearing to indicate that the Sony and Nintendo gaming consoles utilized graphics libraries)) The Court can therefore understand Defendants' confusion with respect to this issue.

By no later than May 21, 2018, Plaintiffs shall submit amended supplemental infringement

contentions that more clearly identify whether “the open GL [software] is part of [Defendants’] software game[s] or is open GL [] something that is found on the Nintendo or Sony game console[s].”⁵ (Tr. at 15)

5. Defendants next argue that PDIC’s infringement contentions are deficient because while the claims require that spectral analysis be performed at some point, PDIC’s contentions fail to allege that spectral analysis is performed in any of the accused products. (D.I. 228 at 2; Tr. at 29-30) In response, PDIC retorts that spectral analysis is *not* required when the virtual environment is produced based on control information alone (but instead, is only required when the virtual environment is being produced directly from music). (D.I. 233 at 3; Tr. at 30-31) PDIC then notes that its infringement contentions allege that the virtual environments of the accused games are produced based on control information alone (and that music is not used to produce the graphics—instead music is just played back as is). (D.I. 233 at 3; Tr. at 31-32) Accordingly, PDIC argues, its infringement contentions are not deficient in failing to show that spectral analysis is performed in any of the accused products. (D.I. 233 at 3; Tr. at 31-32)

6. During claim construction (in the course of construing the means for receiving and means for producing limitations), the Court rejected Defendants’ position that spectral analysis be required whenever a virtual environment is generated, whether based on music or

⁵ After PDIC served amended supplemental infringement contentions on April 10, 2018, Defendants Harmonix and EA brought an additional discovery dispute asserting that these latest contentions remain deficient, in that they fail to sufficiently “identify the corresponding structures that perform the claimed functions and fail to identify the alleged equivalent structures in the accused products that allegedly perform the same functions.” (D.I. 287 at 1; *see also id.* at 2; D.I. 280) Harmonix and EA essentially make the same arguments as they made with respect to the prior contentions, and in doing so, focus only on discrete portions of the amended supplemental contentions. (D.I. 287 at 1; D.I. 291 at 1) The Court’s ruling with respect to this additional discovery dispute is the same as its ruling above.

control information. (D.I. 193 at 18-20) In doing so, the Court explained that “while spectral analysis is a required step of the algorithm when the [virtual reality] system receives music information that has not previously undergone spectral analysis,[⁶] it is not required when the system receives control information that was generated from music information that has previously been subjected to spectral analysis, or when the system receives only control information and there is no music information that needs to be analyzed.” (*Id.* at 22-23) Turning to PDIC’s infringement contentions with respect to these limitations, PDIC asserted that:

The gaming console processors execute the *Just Dance* electronic video game software to [] process control information, i.e., information defining markers in the music, song tempo, lyrics, animations, and choreography, extracted from stored electronic song track files, and information representing user input from virtual reality peripheral hardware devices used to play the game software, such as motion-capture game controllers and microphones, to create, destroy, move, and/or modify graphics in the computer-simulated environment produced by the *Just Dance* electronic video game software, and [] play back music and sounds.

(D.I. 228, ex. D at 38, 47) During the February 2018 telephonic hearing, PDIC explained that these statements demonstrate that the virtual environment is being produced “*based on control information alone*” and that while the accused games separately play back music and sound, spectral analysis is not required to just play back a music file. (Tr. at 31-32 (emphasis added))⁷

⁶ In that regard, the specification of the '129 patent explains that “[t]he [virtual reality] program performs a spectral analysis of the digitized music information . . . and tests the specified frequency band for energy level. Upon detecting the threshold level, the [virtual reality] program creates (displays) the object at a given X, Y, and Z location.” ('129 patent, col. 18:63-67)

⁷ Since the Court’s February 2018 telephonic hearing with the parties regarding this issue, PDIC has served amended supplemental infringement contentions on at least Harmonix, in which it further spelled out its position in this regard. (D.I. 287, ex A at 7-8 (PDIC explaining that based on the Court’s claim construction, “spectral analysis is not required where, as in the accused systems, the virtual environment is produced by receiving and processing control

In light of the claim construction for the means for receiving and means for producing limitations, as well as PDIC's position that the virtual environments of the accused game are *not* produced based on music information (but instead based on control information), the Court does not find PDIC's infringement contentions deficient as they relate to spectral analysis. To the extent that Defendants believe that they can disprove PDIC's position regarding spectral analysis, that issue can be adjudicated, on the merits, at the appropriate time. *See SSL Servs., LLC v. Cisco Sys., Inc.*, Case No. 2:15-cv-00433-JRG-RSP, 2016 WL 727673, *8 (E.D. Tex. Feb. 24, 2016) (explaining that "infringement contentions are not meant to provide a forum for litigation of the substantive issues" and that the defendant's disagreements with the factual accuracy or legal correctness of the plaintiff's theories had no bearing on the sufficiency of the plaintiff's contentions, where those contentions identified the structures in the accused products that plaintiff contended satisfied the claim elements) (internal quotation marks and citation omitted).

7. Defendants also assert that there are four additional "[g]eneral [d]eficiencies" with respect to PDIC's infringement contentions, as follows: (1) no disclosure of what action is alleged to be the action of prerecording a control track; (2) no disclosure of what specific structure is alleged to be the prerecorded control track; (3) no disclosure of specific structures in which "processors in the gaming consoles" and which "software loaded on those systems" correspond to the requirements of Limitation 12.C; and (4) no disclosure of which "gaming consoles" are accused, other than Nintendo and Sony. (D.I. 228 at 2 (emphasis omitted)) With respect to (1), PDIC points to the portion of its infringement contentions that describe what

information, and the music is played back without being analyzed and used by the processor to create, destroy, move or modify the virtual environment or virtual objects therein"))

action is alleged to be the action of prerecording a control track (e.g., with respect to Ubisoft, providing “user input from peripheral hardware devices used to play the game software to select and download additional electronic song track files. . . . [and] storing the downloaded electronic song track files on the gaming console system”). (D.I. 233 at 3 (citing D.I. 228, ex. D at 37)) Likewise, with respect to (2), PDIC specifically points to the portion of its infringement contentions that identify the specific structure alleged to be the prerecorded control track (with respect to Ubisoft, it is, for example, “*Just Dance* electronic song track files stored on removable disks or internal storage devices” of the gaming consoles). (*Id.* (citing D.I. 228, ex. D at 4)) The Court is satisfied with PDIC’s contentions as they relate to (1) and (2). With respect to (3), Defendants have not sufficiently explained their complaint, and so they have not demonstrated an entitlement to relief on this issue. As for (4), PDIC contends that its contentions “specifically identify” the gaming consoles used to execute the game software, (D.I. 233 at 3), and PDIC cites to the portions of its infringement contentions that assert that the accused “virtual reality computer system” is, *inter alia*, the “gaming console systems, such as the Nintendo Wii and Sony PlayStation gaming consoles, used to execute the *Just Dance* electronic video game software[,]” (D.I. 228, ex. D at 3). The subsequent claim chart to which PDIC also cites specifically identifies Nintendo Wii and Sony PlayStation 3. (*Id.* at 6-7) The Court is satisfied with this response—as it is clear that no gaming consoles other than the Nintendo or Sony consoles are being accused.

8. Because this Memorandum Order may contain confidential information, it has been released under seal, pending review by the parties to allow them to submit a single, jointly proposed, redacted version (if necessary) of the Memorandum Order. Any such redacted version shall be submitted no later than **May 17, 2018**, for review by the Court, along with a motion for

redaction that includes a clear, factually detailed explanation as to why disclosure of any proposed redacted material would “work a clearly defined and serious injury to the party seeking closure.” *Pansy v. Borough of Stroudsburg*, 23 F.3d 772, 786 (3d Cir. 1994) (internal quotation marks and citation omitted). The Court will subsequently issue a publicly-available version of its Memorandum Order.

Dated: May 14, 2018



Christopher J. Burke
UNITED STATES MAGISTRATE JUDGE